

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Garey Barrell, K4OAH" <75025.73@compuserve.com>  
Subject: "Final" 4H4C Stuff  
Message-ID: <960105152452\_75025.73\_FHD66-2@CompuServe.COM>

OK This is the last one. I know the 99% of you without ballast tubes in your BA's are tired of hearing about this.

National NC-300 receiver. The circuit consists of a nominal 13.5 vac transformer winding - 2.2 ohm 2W wirewound resistor - Amperite 4H4C {or} 6V6GT - fil pin of 6AH6 HF oscillator tube.

measured with 6V6GT

Line voltage	xfrmr	2.2 ohm	fil pin	
120	14.0	12.8	6.4	
116	13.5	12.6	6.2	
112	13.0	11.8	6.0	
108	12.6	11.4	5.7	

measured with 4H4C

Line voltage	xfrmr	2.2 ohm	fil pin	
120	14.0	12.6	7.0	
116	13.5	12.2	6.9	
112	13.0	11.8	6.7	
108	12.6	11.3	6.6	

HF oscillator frequency variation.

Measured on 20 Meter band, 12 MHz HFO

Regulator	120 VAC - 108 VAC
6V6GT	390 Hz
4H4C	105 Hz

Line voltage measured with Superior Instrument Co Model No. 1550 Expanded Scale AC voltmeter. (Iron Vane!)

Low voltages measured with (blush!) Beckman Tech 310 DVM

Conclusions. It looks like Amperite / National knew what they were doing! Whether or not it's really significant is another question. This receiver is not a frequency standard. With the relatively stable line voltage, (at least at my location,) I have found that the NC-300 is more than adequate to listen to SSB signals such as the 40M traders net for hours without retuning. There is far more variation between stations than this. On AM, with various crystal controlled stations and VFO's in a given roundtable, you're talking a couple of Kc. To me, it looks like the most significant finding is that with the 4H4C in there, the filament voltage on the HFO tube is too high with todays line voltages and the 2.2 ohm resistor needs to be about 3.3 ohms.

Your comments / suggestions / opinions are welcomed. 73, Garey - K40AH

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: wally@mindy.sys.sdl.usu.edu (Wally Gibbons)  
Subject: 2m am rigs,,  
Message-ID: <9601051754.AA25555@mindy.sys.sdl.usu.edu>

Hello and Happy New Year to all,

I spent the holidays re-working a couple of old Aerotron vhf AM rigs, and wondered how popular these things were? Mine are crystaled up in the 2 meter band, but the manual says could be used from 118 - 150+ mhz. Anyone out there familiar with or using one on the air? The model number is 500A. Pretty nice little 10 watt rig. Who knows, I may stir up some AM activity around here!!

-wally@mindy.sys.sdl.usu.edu  
Wally Gibbons, WB7ASQ

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: lkayser@WorldLink.ca (Larry Kayser)  
Subject: Re 600L clarification  
Message-ID: <9601051536.AA00813@beacon.WorldLink.ca>

Thanks to Jim Garland for pointing it out, I messed up and mixed up the 600L (which has one 813 in it) and the B&W which has two 813's in it. The 600L especially dislikes gassy tubes however, the B&W would get very fussy with unbalanced tubes - sorry for the error.

Larry

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: aa4rm%amos.UUCP@mathcs.emory.edu (Marty)  
Subject: Re: AWA contest? CX CX too!  
Message-ID: <9601051358.AA06801@amos.YP.mystnite>

The 11/95 Old Timer's Bulletin shows it to be Feb. 14-15 and Feb. 17-18

No rules are given but note I've worked a few of these with my "dualing 69s" - a Stancor 69 and a RME69 [tx]). Op. times are 6P to 6P each day-pair. Suggested freq.s are 80 khz up from band edges (??) on 80, 40, 20. Pre 1942 eqpt. is only type eligible for score and there

are power multipliers that are roughly:

<10 w => X3  
<100w => X2  
>100w => X1

DX mult. is 1X zone to same zone (W1,2,3,4,8,9 - W5,6,7 - DX)  
2X zone to US diff. zone  
3X US to DX ???

So there's some uncertainty there that I'll clear up if there's interest.

OH Yes... scores to Bruce Kelley, W2ICE / AWA / 59 Main St. /  
E. Bloomfield, NY 14669

AND

The Viking Ranger, HQ129X, etc. Classic Radio Exchange is Feb. 4 starting 3P EST (4P?) going to 11P EST. Call CQ CX up 60 khz from band edge - CW of course. Regular AM freq.s OK too. Score is #qso-s x total age of all qualified rigs (3 qsos ea.) x sum of all rx-s + tx-s + states worked on each band & mode. Logs, scores, notes to aa4rm (moi), n5ait, or w8kgi via e- or snail-mail here on BA

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Dick Dillman" <ddillman@igc.apc.org>  
Subject: Bite Me  
Message-ID: <83568.ddillman@igc.apc.org>

Hmmm. No bites on the Very Nice Heath IM-18 VTVM.

Wait, did I say \$35? For special friends of Rick's, \$25.

Dick Dillman  
WPE2VT N6VS ex-WA2BJK  
<ddillman@igc.apc.org>  
Collector of Heavy Metal:  
Harleys, Willys and Radios Over 100lbs.

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: lbbarley@southwind.net (Bruce Barley)  
Subject: Re: Bite Me

Message-ID: <199601051903.NAA20311@onyx.southwind.net>

Hi, Dick -

I've got one of these IM-18's and I just can't believe that no one is jumping { and I mean LEAPING - WITH BOTH FEET!) on something like this! For anyone who's not familiar with this VTVM, it is absolutely worth having! Nice size, eazy to read meter, and just wonderful for general measurements of voltage and resistance on your R-390. A great companion piece!

>

>Hmmm. No bites on the Very Nice Heath IM-18 VTVM.

>

>Wait, did I say \$35? For special friends of Rick's, \$25.

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From boatanchors@theporch.com Fri Jan 5 18:22:33 1996

From: "Dick Dillman" <ddillman@igc.apc.org>

Subject: Re: Bite Me

Message-ID: <60676.ddillman@igc.apc.org>

On Fri, 5 Jan 1996 13:03:08 -0600,

Bruce Barley <lbbbarley@southwind.net > wrote:

>I've got one of these IM-18's and I just can't believe that no one is  
>jumping { and I mean LEAPING - WITH BOTH FEET!) on something like this!  
>For anyone who's not familiar with this VTVM, it is absolutely worth having!  
>Nice size, eazy to read meter, and just wonderful for general measurements  
>of voltage and resistance on your R-390. A great companion piece!

Now you're making me think I should keep it! R-390A is working fine but I've got this RACAL RA-17L glowering at me with no B+ (sorry, Gov. I mean H.T.). I was using my equally British AVO VOM on it, but now...

Dick Dillman  
WPE2VT N6VS ex-WA2BJK  
<ddillman@igc.apc.org>  
Collector of Heavy Metal:

## Harleys, Willys and Radios Over 100lbs.

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Homer Blincoe"  
<"blincoe\_h%Organization=ELEC\_SYST\_ENGR%Telephone=4211"@a1.clust>  
Subject: Boatanchor comment

Emil, I took off for vacation after I wrote you the note about the light bulbs no longer using vacuums...wonder if anyone commented on the BA net?

Another comment on BA 402 was about measuring filament voltage.

VanCleave was mentioning comparing two light bulbs, one with known DC, the other with the non-sine waveform AC that was across the heater. He made the comment that it would take a "good eye" to match them up.

I had the same problem at Sperry with magnetron filaments and also used two pilot bulbs...but I used a make shift "grease spot" photometer.

Here, the two light bulbs were positioned as identical in orientation and distance as possible on either side of a piece of plane typing paper with a small spot of silicon grease in the middle of it. When the light intensity was nearly equal, the spot would "null out"...it was a pretty sensitive match and did not require much guessing by the operator. A swapping switch was then used to change the bulbs around and a second reading taken. The average was a very accurate indication of the RMS of the voltage presented to the heater.

The guy in charge of the instrumentation lab at Sperry was a very dedicated critic of my system, as he had bought an HP "true RMS" meter at considerable expense to be used to set the filament voltage and was very embarrassed when it was discovered that it was way off, due to the fact that there was a dc component present that HP had not designed for. In trying to "prove" that my system was not accurate enough he inadvertently proved that it was better than the 3% required...the Navy used it as a standard on that piece of test gear for about 20 years...Sperry had built up a nice little assembly with proper construction and a peep hole arrangement that worked quite well.

----- End of Forwarded message

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: parker@sol.med.ge.com (Timothy Parker x7-4463)  
Subject: Boggling array of part numbers  
Message-ID: <9601051925.AA07061@pacific.med.ge.com>

Hi all,

I have been bewildered ever since I joined this list by all of the different part numbers of equipment for sale. Does anyone have a reasonable list available that would help me make sense of all the numbers. Being new to this stuff I don't know a Hammerlund from a Collins and most often when equipment is listed for sale there is not a lot of detail provided.

Thanks,

Tim Parker KB9KIT  
Wisconsin

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: doonan@cordmc.dnet.etn.com (DENNIS DOONAN X6916 (KG9DO))  
Subject: RE: Boggling array of part numbers  
Message-ID: <9601051836.AA05413@etn.com>

Tim,

We all get swamped over some things, some times.

Check out the BA BONEYARD list in the Boatanchor archives. This is a list of gear with "prices". It may be a starting point.

There are also two good paper bound books--one on vacuum tube receivers and vacuum tube transmitters. These are available at Electric Radio, Antique Electric Supply, etc. There is a bookseller that frequents the bigger ham fests in WI and IL who carries these.

It also helps a lot to spend time at swap fests just looking at the old gear. Try to put "names with faces".

Not everyone knows all the names of everything anyway. That's why we like this stuff. There is such a wide array of gear. There is something for everyone.

Have fun and don't be afraid to ask questions if you get stuck.

73 de Dennis, KG9DO doonan@cordmc.dnet.etn.com

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: parker@sol.med.ge.com (Timothy Parker x7-4463)  
Subject: Re: Boggling array of part numbers  
Message-ID: <9601052011.AA07298@pacific.med.ge.com>

Ummm,

I'm a little embarrassed to admit that I never really realized the full power of this list (and never fully read the faq) but an index of the boatanchors archive proved to be very illuminating to me. I think I will find pretty much what I want there.

Thanks to those that pointed me in the right direction for the information that I am seeking.

Tim Parker     KB9KIT  
Wisconsin

From boatanchors@theporch.com   Fri Jan   5 18:22:33 1996  
From: x90galbrait1@wmich.edu  
Subject: RE: Boggling array of part numbers  
Message-ID: <Pine.PMDF.3.91.960105180903.671420797A-100000@wmich.edu>

Don't forget old QSTs!! Most libraries ('specially universities) have QST back to the 40s, at least. There's nothing like a full page ad for a Ranger I or a SX-88!

73, Chris KA8WFC

From boatanchors@theporch.com   Fri Jan   5 10:47:25 1996  
From: Al Klase <alklase@village.ios.com>  
Subject: Re: Contact Cleaner Recommendation? / Lithium Grease Source?  
Message-ID: <Pine.BSD.3.91.960105070520.10864A-100000@village.ios.com>

White lithium grease can be found in small tubes in your local hardware emporium under the name Lubriplate.

73, Al - N3FRQ

From boatanchors@theporch.com   Fri Jan   5 18:22:33 1996  
From: Sandra L Knepper <slkst29+@pitt.edu>  
Subject: Re: Contact Cleaner Recommendation? / Lithium Grease Source?  
Message-ID: <Pine.3.89.9601051643.H19610-0100000@unixs6.cis.pitt.edu>

Also at Wal-Mart in the automotive section listed as Marine Grease.

Dave, W3BJZ

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: jlivingston@cix.compulink.co.uk (John Livingston)  
Subject: CV1377  
Message-ID: <memo.612249@cix.compulink.co.uk>

According to my AV0 valve data manual, the equivalents for the CV1377 are 5AR4 and GZ34.

John Livingston	jlivingston@cix.compulink.co.uk
G4FDD	G-QRP 431
+44(0)1904 794305	FAX +44(0)1904 657778

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: w7ni@teleport.com (Stan Griffiths)  
Subject: DC Regulated Filaments  
Message-ID: <199601050712.XAA20863@desiree.teleport.com>

Well, I can tell you what DC regulated filaments do for the stability of the the vertical amplifier in the 585 Tek scope. They improve the stability of the gain with variations in line voltage A BUNCH. In other words, an early type 585 or 581 without regulated DC filaments for the vertical amplifier will have vertical amplifier gain changes with normal line voltage changes up to 10 percent or so. Most people think of a scope as being able to make 3 percent or so measurements and usually that is true. Not true of early 581 and 585 scopes. I don't remember anyone ever discussing improved tube life due to DC regulated filaments in scopes. Only improved amplifier gain stability.

You can see I have led a very narrow life confined to a small closet with nothing but Tek scopes in it!

Stan W7NI@teleport.com

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: haynes@cats.ucsc.edu (Jim Haynes)  
Subject: Edison light bulb replica  
Message-ID: <199601051816.KAA19719@hobbes.UCSC.EDU>

A while back I discovered that Henry Ford Museum sells several replicas of Edison light bulbs, and posted the information to the list. Today I discovered that Grove Enterprises also has an Edison bulb replica.

<http://www.grove.net>



From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: lbbarley@southwind.net (Bruce Barley)  
Subject: FOUND: 1914 Amateur Handbook! \$.25 !  
Message-ID: <199601051947.NAA24741@onyx.southwind.net>

Hello to all -

WHEN YOUR LOCAL LIBRARY HAS A BOOK SALE - GO!

A nearby community public library had a book sale, and would you believe I picked up the 3rd edition (1914), of "Wireless Telegraph Construction for Amateurs" - 222 pages, for the paltry sum of TWENTY FIVE CENTS! The author is A.P. Morgan, " Editor, Mechanical and Electrical Department of 'Boy's Magazine'."

This book was first published in 1910, and I quote: "It is the object of this book to show the construction of simple, efficient instruments by means of clear drawings, and to give enough elementary theory and practical hints to enable the experimenter to build a size and type in keeping with his needs and resources."

The quintessential boatanchor: Sparkgap transmitters with complete "how-to". And you think YOU'VE got TVI problems! What a lot of history, here.

- Ch. 1 - Introductory
- Ch. 2 - The Apparatus
- Ch. 3 - Aerials and Earth Connections
- Ch. 4 - Induction Coils
- Ch. 5 - Interrupters
- Ch. 6 - Transformers
- Ch. 7 - Oscillation Condensers and Leyden Jars
- Ch. 8 - Spark Gaps or Oscillators
- Ch. 9 - Transmitting Helixes
- Ch. 10 - Keys
- Ch. 11 - Aerial Switches and Anchor Gaps
- Ch. 12 - Hot Wire Ammeter (construction of a sensitive)
- Ch. 13 - Oscillation Detectors
- Ch. 14 - Tuning Coils and Transformers
- Ch. 15 - Receiving Condensers
- Ch. 16 - Telephone Receivers and Headbands
- Ch. 17 - Operation
- Ch. 18 - The Amateur and The Wireless Law (1912 regulations - complete)

Would you believe the entire book has exactly two pages about tubes - there is a BRIEF description of DeForest's new invention "the audion", and a sketch.

I also picked up a second book, "Radio Telephony" published in 1918. The

author is Alfred Goldsmith, "a fellow of the Institute of Radio Engineers".

By 1918, telephony was the rage, and this book has some fantastic photographs of WWI era radios, with schematics. Some really ingenious ideas of voice modulating a spark gap!

Lots of early vacuum tube equipment, tubes, and schematics.

I was just knocked out to see some "oscillograms" showing non-linear speech distortion and voice signals. Fessenden, Moretti, and Armstrong are alive and well in this book.

Well, I can see that I really have my reading material lined up for the rest of the winter. Just be sure that when your local library has a book sale, that you at least check it out.

Best wishes - 73

Bruce - KB0PZD

lbbarley@southwind.net

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996

From: Jacqueline Herman <jherman@sierra.net>

Subject: Free Book

Message-ID: <Pine.SUN.3.91.960105152829.11259D-100000@diamond>

I have a copy of William Orr's and H.G. Johnson's VHF HANDBOOK (1956) free to the first responder.

Lots of neat tube projects included.

I also have an xtal for 3711 kc free to the first responder.

(If I don't answer your reply it means that the item is gone.)

73 from Hawaii (I'm DX!),

Jeff NH6IL

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996

From: KC5IJD@aol.com

Subject: FS: Mechanical Filters

Message-ID: <960105085650\_32480137@mail04.mail.aol.com>

I have the following for sale (might entertain trades):

Collins mechanical filters:

For the 75A-4:  
F455J-15 (1.5 Kc) \$ 185.00

For the PRC-47

The USB filter 15.00  
In case yours has gone bad

The LSB filter 50.00  
Convert your PRC-47 to LSB

For the S-Line  
F455FA-21 50.00

All, plus shipping.

Also have a large stock of tubes, please ask.

Joseph W Pinner  
Lafayette, LA  
KC5IJD  
EMail: kc5ijd@aol.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: MEC <danmec@inet.uni-c.dk>  
Subject: Re: FS: Mechanical Filters  
Message-ID: <Pine.3.89.9601051558.A17069-01000000@inet.uni-c.dk>

What happened to the extra 10 dlrs you were supposed to send me ?

73 Rag oz8ro

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Emil Switzer" <switzer\_e%a1.clust.CLUST.umd@engult.lxe.com>  
Subject: fui  
Message-ID: <85748050106991/83399@CLUST>

To: boatanchors



Received: 05-Jan-1996 12:29pm

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: "Dick Dillman" <ddillman@igc.apc.org>  
Subject: Fwd: G-133 OWNERS TAKE NOTE: RARE PIECE!  
Message-ID: <63134.ddillman@igc.apc.org>

\*NOTE\* This message is a cross posting from rec.radio.swap. All replies must go the the person making the original psoting, not me.

----- Forwarded message begins here -----  
From: Radiomatt <radiomatt@aol.com>  
>Newsgroups: usenet.rec.radio.swap  
From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: "Dick Dillman" <ddillman@igc.apc.org>  
Subject: Fwd: Vacuum-tube test equipment  
Message-ID: <63130.ddillman@igc.apc.org>

\*NOTE\* This message is cross posted from rec.radio.swap. Replies must go to the person making the original post, not me.

----- Forwarded message begins here -----  
From: Mark Gaidos <mgaidos>  
Newsgroups: usenet.pdx.forsale, usenet.or.forsale, usenet.rec.radio.swap  
From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
Subject: G-133 OWNERS TAKE NOTE: RARE PIECE!

----- Forwarded message ends here -----

Dick Dillman  
WPE2VT N6VS ex-WA2BJK  
<ddillman@igc.apc.org>  
Collector of Heavy Metal:  
Harleys, Willys and Radios Over 100lbs.

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "ROBERT W DOWNS, WA5CAB" <103012.2130@compuserve.com>  
Subject: GOING OUT OF THE COUNTRY

Message-ID: <960105051801\_103012.2130\_GHU115-1@CompuServe.COM>

Group,

I'll be in Mexico on business from 08 Jan, 96. Don't expect to be gone more than a week or so but you never know.

Jack, if my mail box fills up and Compuserve bounces a digest, unsubscribe me. I don't expect it to but stranger things have happened. I don't want to miss anything, but I don't want to cause any trouble either! Also, if a notice like this doesn't help you any, let me know and next time, I'll try something different.

73, Robert Downs, WA5CAB  
103012.2130@compuserve.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: MICHAEL@ecs.umass.edu  
Subject: Re: GOING OUT OF THE COUNTRY  
Message-ID: <01HZNBL6BEQA8ZEIXV@ecs.umass.edu>

>Jack, if my mail box fills up and Compuserve bounces a digest, unsubscribe me.  
>I don't expect it to but stranger things have happened. I don't want to miss  
>anything, but I don't want to cause any trouble either! Also, if a notice like  
>this doesn't help you any, let me know and next time, I'll try something  
>different.

Uh, with all due respect, Bob, it isn't reasonable to expect Jack to do this; especially not for all 750+ of us. What I do when I go away is to send the following message to listserve@theporch.com:

SET BOATANCHORS MAIL POSTPONE

When I return, I send the listserver the message:

SET BOATANCHORS MAIL ACK

You, as a digest subscriber on the other hand, would send it:

SET BOATANCHORS MAIL DIGEST

This should start them on their way to you again. Of course you'll have lots of reading to catch up on. I do this with a web browser, reading the daily files at

<http://sunsite.unc.edu/pub/academic/agriculture/agronomy/ham/BOATANCHORS/>  
(whew!). Dunno if Jack has the digests archived someplace as well.

Best wishes,

John Michael                    michael@ecs.umass.edu

From boatanchors@theporch.com   Fri Jan  5 18:22:33 1996  
From: "Roberta J. Barmore" <rbarmore@indy.net>  
Subject: Help?  
Message-ID: <Pine.3.89.9601051657.C18085-0100000@indy2>

Hi!

Has anyone on the list done business with Dean Bershauer, K06IJ? I'm talking with him about purchasing a receiver. The deal looks fine but it's from a rec.radio.swap ad rather than the BA-list, so it seemed wisest to ask first.

73,  
--Bobbi

From boatanchors@theporch.com   Fri Jan  5 18:22:33 1996  
From: jmartin@hrlban1.aircrew.asu.edu  
Subject: homebrew tubes circa 1920s  
Message-ID: <SA39+Z5Lvka@hrlban10.alhra.af.mil>

Bill Meara wrote:

>Could it be that our hero succeeded in turning out an RF amplifier tube that  
>performed better than the receiving tubes that were being employed prior to  
>1926?

=====

The mercury pump described sounds like a Toepler pump. Getting a good vacuum with one of these took many hours, and even then it was a 'soft' vacuum by modern standards. OK, so our hero was dedicated... but my doubts go into high gear when it comes to making glass-to-metal seals good enough to hold that hard-won vacuum. Further, a Toepler pump requires a quantity of glass tubing, as well as the mercury mentioned in an earlier post.

I wonder about the cost of the tubing and mercury compared to the cost of purchasing a tube outright. An inspiring account, though.

73,   John Martin  
      jmartin@hrlban1.aircrew.asu.edu

From boatanchors@theporch.com   Fri Jan  5 18:22:33 1996  
From: "Rhett T. George" <rtg@ee.duke.edu>  
Subject: Hoof-in-mouth disease

Message-ID: <199601051718.MAA93425@ee.duke.edu>

- Greetings -

A new year's resolution was to keep my feet out of my mouth. Did not last long, did it. Related topic is moving iron-vane meters.

Indeed, moving iron-vane meters of the two-iron design (usual design) are true rms meters. The iron is operated below saturation so that the field in each piece is proportional to the current in the coil. The force which moves the needle depends on the mutual repulsion between the fields in the irons.

In the book "Instruments and Measurements for Electronics," by Clyde N. Herrick, McGraw-Hill, 1972, it is noted on page 36, "Among the true rms class of instruments, the iron-vane type is in fairly wide use."

Next time I'll check the location of foot before opening mouth.

73

Rhett George - KE4HIH

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: FRANCIS4@AppleLink.Apple.COM (Francis, Dexter)  
Subject: HT-32A Pwr Supply Questions  
Message-ID: <820878686.6633683@AppleLink.Apple.COM>

A glowing new year to all -

I've started to dig into the power supply section of the HT-32A and have a few questions for any other owners. As mentioned previously, the ex-owner of this radio did a power transformer replacement and I'm getting excessive voltage on the plates of the 6146's. (1kV!) In looking over the transformer I've noted a couple of things:

Part Number is 052-400673 (it looks like a direct replacement part)

There are two holes in the bottom of the transformer housing, one has 9 wires coming out the other has 5.

The one with 5 wires has the following colors and routing:

Green - to a barrier strip next to the txfmr.  
Green - to a barrier strip next to the txfmr.

Black - to fuse holder



Black - to barrier strip next to the txfmr.

Yellow - to pin 6 of the 5R4GY (Is this correct?)

The one with 9 wires has the following colors and routing:

Y/R - to chassis ground

Y/R - to pin 4 of 5V4 -

Y/R - to pin 6 of 5V4 -

yellow - to pin 8 of 5R4GY -

yellow - to pin 2 of 5R4GY -

red - to pin 2 of 5V4 -

red - to pin 8 of 5V4 -

The voltages look like this with the 6146's pulled:

5R4 - Pins 2 & 8 = 1132 Volts DC

5R4 - Pins 4 & 6 = 949 Volts AC

5V4 - Pins 2 & 8 = 285 Volts AC

5V4 - Pins 4 & 6 = 360 Volts DC

As a further point, the choke to the plates of the 6146's measures 6 ohms.  
I seem to recall someone saying it ought to be about 200 ohms...

Anything look grossly amiss to anyone?

-df

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996

From: "Dick Dillman" <ddillman@igc.apc.org>

Subject: IM-18 Bitten

Message-ID: <69885.ddillman@igc.apc.org>

The Heath IM-18 VYVM has been spoken for...

Dick Dillman  
WPE2VT N6VS ex-WA2BJK  
<ddillman@igc.apc.org>  
Collector of Heavy Metal:  
Harleys, Willys and Radios Over 100lbs.

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: David Hirneisen <0005020654@mcimail.com>  
Subject: item for sale  
Message-ID: <63960105192636/0005020654PK3EM@MCIMAIL.COM>

for sale - a brand-new, never-worn, baseball style cap with the  
"Society of Broadcast Engineers" logo on the front.

blue with a white logo, purchased at Dayton last spring.

\$10.00, I'll pay the postage. thanks.

david hirneisen, n3gkb  
dhirneisen@mcimail.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: w7ni@teleport.com (Stan Griffiths)  
Subject: Measuring Filament Voltage  
Message-ID: <199601050712.XAA20842@desiree.teleport.com>

A couple of weeks ago, I said the following:

I offer this information "for what it is worth" which may not be too much  
outside of a type 555 or 517 Tektronix scope . . .

Both of those scopes have regulated AC filament supplies that use a  
"saturable reactor". I suspect that using that method of regulating AC  
distorts the waveform so that it is no longer sinusoidal. Tek specifically  
tells you to use an "iron vane" AC voltmeter to measure and set the filament  
voltages. I think this is because the iron vane meter will give you a true  
RMS voltage measurement regardless of waveform distortion due to the  
regulator circuit. Normal AC voltmeters give wrong readings, or certainly  
different readings than the iron vane type. I have read the same voltage  
with an iron vane meter and a Triplet 630NA and see differences of 10 or 15  
percent as I recall it.

This may be moot since there may be no distortion of the filament voltage

waveform in those Collins rigs.

Just a thought . . .

Stan W7NI@teleport.com

\* \* \* \* \*

This post helped continue a fairly long thread on measuring AC voltages during which I learned a lot. You may notice that I was not too sure of the ground I was walking on when I made the original post. Believe it or not, after reading all those pages and pages of answers, I still don't know if an "iron vane" meter reads true RMS or not and if that is indeed what Tek wants you to read when setting the filament voltage for 517 and 555 scopes. If someone actually gave a simple straight answer, I missed it . . . All I know is that Tek wants you to set filament voltage with an iron vane meter. I am still guessing why.

Stan W7NI@teleport.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Garey Barrell, K4OAH" <75025.73@compuserve.com>  
Subject: More 4H4C Stuff  
Message-ID: <960105050527\_75025.73\_FHD39-1@CompuServe.COM>

I went back and re-read the National ECN that I have re: the 2.2 ohm resistor. This resistor was not in place of the 4H4C, but added in series with it. So the chronology of the ECN's now make sense. I found a small piece of paper folded up in one of my spare 4H4C's that had hand-written specs on the 4H4C, including a small graph showing the V & I regulation of the unit over a range of 0 - 13 volts across the ballast. The sheet also says:

80% voltage - 5000 hours continuously  
below glow - 5000 hours upward

The sheet shows a relatively flat current from the "threshold current" of "4" tenths of an amp, (the first 4 in 4H4)  
A rating of "high" (+.05 amps), (the "H" in 4H4C),  
A "threshold voltage" of "4" (yep, the second 4 in 4H4C), and "Dissip 12 watts".  
NO explanation for the "C" !

The curve shows a relatively flat current from the threshold voltage of 4 out to about 11 volts.

It looks like I'm going to find out more than I ever wanted to know about ballast tubes. I never learn...

Garey - K40AH

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: Cainjim@aol.com  
Subject: Must sell  
Message-ID: <960104111404\_31594185@emout04.mail.aol.com>

-----

Price reduced, lost job, must sell: SX-111, HA-5, HA-1, 2NT. \$325 including shipping. Sell SX-111 and/or 2NT for \$100 each. Will not sell HA-1 or HA-5 except as part of complete package. All clean, complete, on the air, with manuals (SX-111) or photocopies. Jim Cain, K1TN, <cainjim@aol.com> or 860-742-0722.

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: Nick England <nick@cs.unc.edu>  
Subject: National rcvrs for sale/trade  
Message-ID: <199601051658.LAA14513@altair.cs.unc.edu>

Sorry, but I hate shipping stuff - I'll ship it for a trade, but not for cash. For cash sales, will deliver to NC/VA area hamfests or you pick up in Chapel Hill, NC. Will be for sale at Richmond VA hamfest Jan 21.

For sale/trade:

NC-270 w/spkr very good condx, works OK	\$160
NC-155 fairly good condx, works OK	\$80
NC-109 fair condx, works OK	\$50
NC-188 fair condx, works OK	\$50
NC-60 poor but restorable	\$20

Wanted for cash or trade:

- Johnson mobile VF0, Globe Chief Deluxe,
- Heath HW-18-3 (160m), Globe Scout 40,65,65B,
- Johnson Speech Amp, Ameco TX-86, AC-1
- EICO 711 Space Ranger rcvr
- Collins mech filters F500B30, F500B60 (for 51J-4)
- Hammarlund S-200 speaker (for HQ-170)
- National NTS-2 speaker (for NC-303)
- any unbuilt tube-type kits

Nick KD4CPL

nick@cs.unc.edu  
(h) 919/929-4342

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: "Integration Area" <integrat@usr.com>  
Subject: Navy EL-2  
Message-ID: <9600058208.AA820877525@robogate.usr.com>

Does anyone have any information on the Navy EL-2 Rectifier Power Unit? Was this an AC supply for a ground set, like a TBX?

William Donzelli  
integrat@usr.com

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: "Dick Dillman" <ddillman@igc.apc.org>  
Subject: No Address  
Message-ID: <69882.ddillman@igc.apc.org>

John Shriver has drawn my attention to the fact that the message about tube test gear I cross posted from rec.radio.swap was without a return address. A thousand pardons! I usually look closely for that but missed this one. So sorry. As John pointed out, one may of corse post directly to rec.radio.swap to try to get ahold of the guy.

Dick Dillman  
WPE2VT N6VS ex-WA2BJK  
<ddillman@igc.apc.org>  
Collector of Heavy Metal:  
Harleys, Willys and Radios Over 100lbs.

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: Bob Roehrig <broehrig@admin.aurora.edu>  
Subject: noise silencers  
Message-ID: <Pine.ULT.3.91.960105083612.21539A-100000@admin.aurora.edu>

Have been looking back thru some '35 and '36 QST's and wonder if anyone here has built or used one of the James Lamb type noise silencer circuits. This seemed to be the big topic back then and I thought that if it were so great, how come none (to my knowledge) of the commercial receivers picked up on this circuit.

73 de Bob, K9EUI

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: KC5IJD@aol.com  
Subject: Re: noise silencers  
Message-ID: <960105095046\_107231653@mail02.mail.aol.com>

>wonder if anyone  
>here has built or used one of the James Lamb type noise silencer circuits.  
>This seemed to be the big topic back then and I thought that if it were so  
>great, how come none (to my knowledge) of the commercial receivers picked  
>up on this circuit.

As I recall, the SX-28 used the Lamb silencer.

73

Joseph W Pinner  
Lafayette, LA  
KC5IJD  
EMail: kc5ijd@aol.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Ray L. Mote" <rmote@rain.org>  
Subject: RACAL RA-17L available in Australia  
Message-ID: <Pine.SUN.3.91.960105010210.25171D-100000@coyote.rain.org>

VK2GCE called today to chat. In passing, he mentioned that he's got a Racal RA-17L with the external sideband adapter \*and\* both manuals up for sale for \$450 U.S. plus shipping.

He also mentioned that he'd picked up a goodly quantity of those little 2-01A tubes used in the HP-410 probes, and they're also for sale.

If interested, contact him:  
Brian Clarke, VK2GCE  
4 Veronica Place  
Loftus, NSW 2232  
Australia  
Home: 011-612-545-2650 (dialing sequence from U.S.)

Work: 011-612-221-7700 "

That's all the info I have; you'll have to talk to him direct for more.

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Garey Barrell, K40AH" <75025.73@compuserve.com>  
Subject: Re: Re the CE 600L inquiry  
Message-ID: <960105152924\_75025.73\_FHD63-1@CompuServe.COM>

Larry and Jim. There was also an excellent article in the September 1995 issue of "Electric Radio" magazine. The article is very well written and includes quite a bit of design info on the 600L including the "broadband couplers."  
73, Garey - K40AH

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: doonan@cordmc.dnet.etn.com (DENNIS DOONAN X6916 (KG9DO))  
Subject: Reducing Line voltage for BAs  
Message-ID: <9601051455.AA03962@etn.com>

Hello gang,

There was some discussion here in the past, and in the December issue of the Collins Journal about reducing the line voltage to BA gear. The approach uses a filament transformer set up to lower the voltage supplied to the rig.

It works great--I've used this scheme for years.

I recently found the following in the January 1964 QST Hints & Kinks column. It provides a decreased, increased, or original line voltage depending on switch positions. It uses a common 6.3 V center tapped transformer.

```
>-----X-----X
      I          I
      I          o    SW-1
      I          /    (1-2-3)
      I          o o o
>][          I I I
>][          I I I
Vin >][<-----X-I-I--o          SW-2 (2)
>][<-----X-I--o o----->          3
>][<-----X--o/
>][
>][          Vout
      I
>-----X----->
```

Finally, be sure not to exceed the current rating of any of the windings. It is also good practice to fuse the input of the transformer.

73 de Dennis, KG9DO doonan@cordmc.dnet.etn.com  
\*of course real radios glow in the dark, but it is a little known feature that  
\*they now have the best cost-to-weight ratio:  
\* R390: \$ 400/95 lbs ==> 4:1 !!! ya get the most mass for the money  
\* KWM2: \$ 600/28 lbs ==> 21:1 !!  
\* IC765: \$1800/27 lbs ==> 66:1 !  
\*

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: w7ni@teleport.com (Stan Griffiths)  
Subject: Re: Reducing Line voltage for BAs  
Message-ID: <199601052118.NAA13863@desiree.teleport.com>

>73 de Dennis, KG9DO doonan@cordmc.dnet.etn.com  
>\*of course real radios glow in the dark, but it is a little known feature that  
>\*they now have the best cost-to-weight ratio:  
>\* R390: \$ 400/95 lbs ==> 4:1 !!! ya get the most mass for the money  
>\* KWM2: \$ 600/28 lbs ==> 21:1 !!  
>\* IC765: \$1800/27 lbs ==> 66:1 !  
>\*

Gee, you can get a Tek 545 scope for about 75 cents a pound! The ones I got  
for free go off the scale!!

Stan W7NI@teleport.com

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: Nick England <nick@cs.unc.edu>  
Subject: Richmond VA hamfest  
Message-ID: <199601051652.LAA14503@altair.cs.unc.edu>

Any boatanchorites heading for the Richmond frostfest ? Wanna get together  
and say hello around noon at the snack bar ? Look for "Mr. Heathkit" cap.  
I'm also sharing a table but will be wandering around peering under tables  
most of the time.  
Nick KD4CPL

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: Henry van Cleef <vancleef@bga.com>  
Subject: Re: RMS to DC Conversion and Measuring AC Voltages  
Message-ID: <199601050417.WAA01906@zoom.bga.com>



A few further observations on various measurements:

Barry is quite right on the subject of trusting instrumentation. But I would go a lot farther and say never trust anything that isn't directly calibrated against a standard.

As to use of analog vs. digital stuff for measuring RMS values, I rarely say much of anything about digital in this group. The old analog computers, which seem to have become forgotten items, were wonderful toys and easy to set up. They were prone to drift and offered two or three figure accuracy. But for measurement of a 6.3 volt heater voltage, two figure accuracy  $\pm 1\%$  is "overkill." Yes, you can kludge up a bunch of IC's to do A/D conversion of 60 Hz. in real time, use digital stuff to square the value and find the mean, and extract the square root. That seems to me to be a lot of work, even though any idiot can wire digital stuff together and have it work, which is not the case with analog.

So far as digital voltmeters go, I don't like them and I don't have one. An analog meter is a poor man's oscilloscope, particularly at low frequencies where analog scopes can be hard to read. Most of my measurements are "needle in about the right place" measurements and "more" or "less," and with analog, there is no need to try to read changing numbers. As Barry points out, with a digital meter, read the fine print. Most of them have a lot more digits than they have accuracy.

The Ballantine 300 and HP 400 meters I mentioned are common and inexpensive at hamfests, and, tweaked up, they do a fine job. As I pointed out, they are operational amplifiers with a meter on the output. They also have logarithmic meter scales, and rely on the small fact that the log of a square is twice the log of the number unsquared. I had to replace the diodes in a Ballantine meter, and after some exploration of diodes both on a Tek 575 and in the meter, found that a couple of random diodes vs. the original "you can't get 'em any more, and they were selected to boot" did not change accuracy much---maybe 1%. The fact that they are in an op amp feedback loop means that the op amp compensates for differing diode characteristics by an large, so long as the two diodes are reasonably matched against each other. The HP meters are prone to power supply woes (at least all of them I've fixed had problems there), and I like the Ballantines better because they are a little more conservative in their design. But neither design requires a lot of square law jiggy-pokery.

Tweaking one up is fairly simple, except that you need to conjure up an accurate AC source, and that requires a bit of conjury. I use a calibrated DC meter (HP412A), an HP200CD audio oscillator (puts out something that resembles a genuine sine wave), and a Tek 533 scope with

a high gain plug in like an L. I use a DC voltage to calibrate the scope to exactly 2.82 times the RMS value I am looking for, then set the 200CD to match that deflection, and then read the voltage with the meter. Not ideal, and introduces error, particularly in the "scope matching" bit, even though I am not using scope calibration for accuracy. You can check the accuracy of most Tek calibrators by pulling out the multivibrator tube and checking the DC level at the front panel connector. The internal calibrator check point looks at the maximum voltage on the cal attenuator with the multivibrator turned off, so any errors between this and the steps are due to the calibrator resistors.

One of the basic tenets of instrumentation is "the simpler the better." The closer you are to your standards, the less chance for methodology errors. There are a few other tenets, such as having one eye on WWV and the other on the standard cell, and making null measurements against standards, using simple passive components that have been checked for any attenuation needed. That is easier said than done, and I have the nagging notion that I fuss a lot with a lot of things I don't trust that would escape the novice until they were pointed out as sources of error. Null measurements on a scope are hard to make, particularly when the scope is one of the old-timers with an external graticule.

I haven't been feeding the filaments of 4CX1000 tubes recently, but seem to recall that if you are within a couple hundred millivolts of nominal, you are OK, +/-100mv. and you are golden. We need to take a bit of care to determine what accuracy is needed, audit the inaccuracies of both the equipment and the methodology, and work to get acceptable results. That is different from talking about filament voltages compared to a standard cell.

--

\*\*\*\*\*  
Hank van Cleef vancleef@bga.com vancleef@tmn.com  
\*\*\*\*\*

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Barry L. Ornitz" <u856010@eastman.com>  
Subject: RE: RMS to DC Conversion and Measuring AC Voltages  
Message-ID: <Pine.ULT.3.91.960105111203.5942E-100000@dua150.kpt.emn.com>

On Fri, 5 Jan 1996, Dave Knepper (W3BJZ) sent me the following message:

> Barry, what everyone has never addressed are the fluctuations in line  
> voltage going to the filament transformer. Why didn't the explanations  
> include this topic? Power companies are permitted by law to reduce or

> increase their line voltage by whatever percent and therefore the  
> filament voltage can vary accordingly. So one meter reading one day can  
> change the next, especially during peak hours of usage, i.e. hot weather.  
> When I was in the military, we checked filament voltage on a each watch  
> and so recorded.

Dave makes a very good point here, so I thought I would send my reply to the group. Seasonal fluctuations are also extremely common around here in East Tennessee. During winter, with heat pumps and electric heat, and during summer, with air conditioners and heat pumps, my neighborhood voltage is around 118. But during spring and fall, when the temperatures are moderate, I have seen it soar to 125 volts RMS.

Filament voltage should be checked regularly, as Dave says. The other problem that most of us were addressing is that AC meters are notoriously inaccurate. Most of the older tubes were fairly forgiving of filament voltage but the modern oxide coated cathode power tubes like the 3CX-, and 4CX- series (and their older X- versions) are quite critical. This is especially true at high power at VHF and UHF frequencies where the filament voltage must be lowered to compensate for back bombardment heating of the cathode. With these tubes you might want to consider checking the accuracy of your meter first.

73, Barry WA4VZQ ornitz@eastman.com

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: "Barry L. Ornitz" <u856010@eastman.com>  
Subject: RE: RMS to DC Conversion and Measuring AC Voltages  
Message-ID: <Pine.ULT.3.91.960105154404.6379D-1000000@dua150.kpt.emn.com>

On Thu, 4 Jan 1996, Gary Chatters wrote:

> It is hard to be offended by such an informative posting.

{Blush! Thanks.} Gary then went on to ask some good questions about using regulated DC to power the filaments of vacuum tubes. Since our corporate firewall seems to have lost at least one digest - the one where Gary asked these questions [but fortunately he CC'ed me directly], I do not know who may have already answered them. I hope others contributed and what I add is not repetition.

> - Most of these supplies are constant voltage. Would there be  
> any improvement in stability with the voltage regulation?

I have not done this with any receivers, but I have done it to several signal generators and other instruments. There is often a BIG

improvement in stability.

> Some radios have ballast tubes to regulate current. Would it be  
> more appropriate to regulate current? Or limit it?

It probably does not make any difference since the resistances of the tube filaments were kept within tight limits. In many radios using ballast tubes, the filaments are in series. This runs the needed voltage up but this is hardly a problem. Running parallel connected filaments with a constant current source can cause problems if any tube is removed or if a filament opens.

> - Being able to set the voltage precisely would probably help with  
> life extension for tubes, but what about start-up current. You mention  
> over-current protection, but how closely does it have to be limited  
> to benefit tube life time?

Better voltage regulation can improve tube life slightly but this is probably not a big issue except with certain antique tubes or very expensive transmitting tubes. However, I should add that quite a bit of the Boatanchor equipment was designed for 108 to 110 Vrms line voltage. Typically today we see 117 to 122 Vrms. But this alone does not require \_regulation\_; a simple bucking transformer will suffice.

Start-up current is a big issue. When the tubes are cold, their resistance is low - so start-up current is quite high. With incandescent lamps this is called inrush current and it can be as much as 5 to 10 times the normal operating current for a short time. The high currents can cause magnetic stresses on the filaments which are naturally brittle anyway. How many times have you seen a light bulb just burn out during operation versus the number that fail during turn-on? Current limiting the filament supply certainly can help prevent these types of failures.

This brings up a significant issue with modern regulated supplies. These often use what is known as "fold-back" current limiting to protect the supply against a short circuited load. [When the little silicon critters "let the smoke out" they usually short.] Fold-back limiting limits the power dissipation of the regulator circuitry when a short occurs which is generally fine for semiconductor circuitry. Unfortunately, if you try to power vacuum tube filaments with one of these and the inrush current is enough to trip the fold-back, the tubes may never heat. What really is needed is the older conventional current limiting. Since the tubes heat fairly quickly, the added power dissipation in the regulator during start-up is rarely important.

I have the most experience with a circuit I used in a TS-413 signal generator. In this case I just regulated the 9002 oscillator triode. I do not have a tube manual handy but memory says the filament current is

about 0.20 or 0.25 amp. I used a simple uA723 regulator circuit and set the current limit to about 0.28 amp. During start-up, the regulator is in its constant current mode supplying the 0.28 amp. At turn-on the tube voltage immediately jumps to about two volts and rises slowly to 6.3 volts. Somewhere around five volts, the current begins decreasing as the filament resistance increases. The rise from 2 to 5 volts takes about 5 seconds and the rise from 5 to the final 6.3 volts takes another 10 seconds or so. In this particular signal generator, the stability was greatly enhanced. [BTW, the Orcad schematics and word processed documentation for this particular generator modification are still on my "partially finished" list.] I used remote voltage sensing in this application to regulate the voltage at the tube socket thus compensating for the resistance in the RF chokes in the decoupling network. This technique can be especially useful for generators like the HP-608 series. [Several folks have asked for copies of the TS-413/U modifications in the past. I will mail them paper copies when I finish them. However is there any interest in placing these in the FTP archives? I can generate the schematics in either the native Orcad format or in a DXF Autocad file.]

> To restate the questions: What good can regulated filament power do  
> and what kind of regulation do we need to do any good?

1. Marginally improve the operating life of a continuously powered tube.
2. Increase the stability of oscillators and instrumentation.
3. Greatly decrease the inrush current and hence increase tube life of tubes turned on and off - if current limiting is provided.

Voltage regulation is fine for parallel connected tube filaments but current regulation is perfectly acceptable for series connected filaments. Ordinary (and cheap) generic 7806 and 7812 IC regulators are available with output voltages of 6.0 and 12.0 volts respectively at up to an amp of current. These would be perfect for a one or two tube VFO and with the addition of a VR tube or high voltage zener in the B+ supply, might greatly improve its stability.

The older, "big iron" Lambda's seen at hamfests so inexpensively should work well for an entire receiver (and many military transmitters). The older, linear supplies are not very efficient compared to the newer, lightweight switchers but then they are Vintage Solid State so the connection to a Boatanchor is obvious. The big 12 volt supplies are in great demand, but the 6 volt supplies are fairly cheap. 24 volt supplies are great for WWII aircraft equipment.

Switchers will work but watch out for the broadband EMI they produce. They may not like the high inrush currents tubes need when they are first turned on and they are far more likely to have fold-back current limiting. They can be found surplus at dirt cheap prices, however, so some internal hacking might be justified.

73, Barry WA4VZQ ornitz@eastman.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: "Jack Giehl" <JACKG@s1.xetron.com>  
Subject: Surprise from Fair Radio  
Message-ID: <65472474C9D@s1.xetron.com>

Dear BA Enthusiasts,

I am working on restoring R-390A #3. The main PTO was kinda flaky, so I ordered a factory rebuild from Fair Radio for \$45. The last one I got when I drove up there a few months ago turned out to be a Cosmos PTO.

When I opened the sealed package last night, I was pleasantly surprised to find a PTO with the winged Collins emblem. Did they make a mistake?

I will be trying the PTO this weekend and installing an 8 KC filter that I also bought. I sure hope that filter is good, because it takes about an hour to change out.

Jack

73,

=====  
Jack, WB8BFS  
jackg@xetron.com Loveland, Ohio (near Cincinnati)  
=====

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: "Stephanos D. Kotsakis" <kotsste@charlie.acc.iit.edu>  
Subject: TEK TYPE 76 TV VARIAC  
Message-ID: <Pine.SGI.3.91.960105135914.7168B-100000@charlie.acc.iit.edu>

Hello guys,

Anyone ever seen one of these? I have, only in pictures though. I would like to know where I could get one. Thanks for the help.

Steph

kotsste@charlie.acc.iit.edu

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: w7ni@teleport.com (Stan Griffiths)  
Subject: Re: Tektronix 945 Oscilloscope  
Message-ID: <199601050529.VAA19389@desiree.teleport.com>

Message received from Sam Pool (Jan. 4, 1996):

>Hi, Stan

>

>I am leaning toward accepting your offer, but I know so little about it all.

No hurry, Sam. Take your time and get the best deal you can for the 945 even if (sob!) somebody else other than me gets it.

>I know that I want to have the equipment to do old radio repair, and  
>an oscilloscope (working properly) can help.

A scope is helpful in signal tracing though a receiver and/or a transmitter. It is particularly useful in determining the condition of the power supply of almost any piece of equipment. A good power supply is the key to the performance of every other circuit. I have to admit that I have personally done very little work on old receivers. I spend almost all of my time fixing old scopes! There are much better guys than me on the BA list for advice on the right generator to get.

>I don't have the signal generator, though. One with AM audio modulation. My >dad, who used to do such stuff, thinks there might be a plugin that is a signal >generator that I could use, too.

Don't think Tek ever built one for scopes that was specifically for checking radios.

>I know nothing about probes. What do I need for old radio work?

A probe is nothing more than a fancy piece of cable for bringing the signal from the thing you are testing to the scope so you can see it. Probes get a little more complex when they are "attenuator probes" like common X10 probes used on scopes. In the case of attenuator probes, the attenuator part is "frequency compensated" so that all frequencies are attenuated the same over the range of frequencies for which the probe is designed to work. The user will adjust or "compensate" the probe for the particular scope he is using at the time.

Probes that are "X1" (or have no attenuation) are mostly pieces of tough

flexible coax cable with a connector for conveniently connecting to the scope on one end and some kind of insulated hook tip on the other end for getting down into tight circuitry without shorting anything out. Probes need to be grounded near the tip that is picking up the signal and have ground wires for this purpose.

The advantage of a "X10" probe over an "X1" probe is that it raises input impedance of the scope from 1 megohm to 10 megohms. It also lowers the probe tip capacity by several pf. To realize what this means to a user, you have to understand that every piece of test equipment that you connect to something you want to test, changes the operation of the item you are testing at least a little bit. Connecting a "X1" probe to a circuit is just like putting a 1 megohm resistor in parallel with a 30 pf capacitor and connecting them to ground at the point where the probe is attached. Depending upon your circuit, this may or may not invalidate the measurement you want to make. If you use a "X10" probe instead, you raise the value of the parallel resistor to 10 megohms and lower the capacitor to maybe 5 pf. You can see that this will have less effect on the circuit under test and lead to more reliable measurements. The other thing it does is reduce the signal into the scope to one tenth of what it was so you have to have enough extra gain in your scope vertical amplifier system to make up for the loss of signal.

>I don't have to get a 545, if there is another one suitable for me, that  
>I could get a signal generator for, too. I guess that I don't need the  
>bandwidth or maybe some of the other features that the 545 has.

Yes the 545 is overkill for most hobbyists. One of my favorites is a 531 or 531A. It has a lot fewer knobs and less bandwidth (12-15 MHz) but you would probably never miss the "delayed sweep" feature that is left out of it.

>If I knew I would be getting one, I would get your book. But until then,  
>I am relying on your judgement. My wife, who is a librarian, is checking  
>on getting a copy of your book on interlibrary loan, then I could read it  
>and know a little more about plugins and probes.

Not many libraries have purchased my book, but I have a beatup copy that I carry in my brief case that I could lend to you if you want.

>I saw a bunch of CA probes at Tuckers. Didn't ask on the price.

Not sure what you saw here. Maybe it was CA "plugins". Probes attach to the connectors on the front of plugins.

>Was there such a TEK combination oscilloscope and signal generator, or  
>are we talking about lower grade service equipment.

It must be some other brand. Tek made a lot of different scopes and a few



different generators, but none in a combination ideal for radio service that I can remember.

>Also, vintage is probably not very important to me, but usability is.  
>I have no idea until I get your book in hand whether this vintage (1960)  
>is the "price leader". I just don't want to actually buy your book if I  
>end up just selling the 945 to you for a little money.

Another important thing to consider is "serviceability". Can you fix it and keep it running for the next 20 or 30 years? For the most part, the answer is yes for Tek scopes made in the '60s. For those made in the '70s and later, I wonder how long they will last.

>I want to let you know I do think the 1960's TEK scopes are really  
>interesting and impressive machines. I'd like to own one that works,  
>too.  
>  
>About your collection: How do you house it? My wife isn't too pleased  
>with the size of a single 945!

I have a seven car garage at the rear of the property with one car in it ('57 T-Bird) and a hamshack that takes up another seventh of it. The rest is dedicated to the scope collection which consists of more than 360 Tek scopes and plugins now (no 945!). I have probes, carts, cameras, and lots of accessories that are not included in the "360" number. I also have thousands of parts. If you think I have a lot of stuff, you should see Deane Kidd's (W7TYR) place . . . Deane's stuff is different, though. He is mostly into supplying parts and documentation to early Tek scope users and is not what I would call a collector. He probably has a copy of every manual ever printed by Tek and will make copies for a fair price.

Hope you don't mind me posting this to the net as it contains a few things that might be of general interest.

Stan W7NI@teleport.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: lkayser@WorldLink.ca (Larry Kayser)  
Subject: Re the CE 600L inquiry  
Message-ID: <9601051230.AA24843@beacon.WorldLink.ca>

General info and for JIM GARLAND <GARLAND@MPS.OHIO-STATE.EDU>

Wes Schum, w9dyv was the proprietor to Central Electronics and the last time I checked with Irv, W9GA he told me that Wes was still alive and kicking. You might want to try dropping Wes a letter, he might be able to tell you

some of the critical design issues of the 600L.

The 600L was diabolical in alignment, the warning on the back panel is at the minimum one could expect. When I was a young lad a local VE4 had one of these units and he kept doing bad things to it and I got to fix it for him. The biggest thing was to make sure that the 813's in it were somewhat similar in performance, i.e. things got warm real quick if one of the 813's was very gassy (lots of blue light in it). The design was done without the aid of a computer which says a lot for Wes's capability with a slide rule and his dogged determination to get it right. There was also an article in QST once about the technique used to design the coupling circuits, a literature search would identify the issue. The CD 100V and the 200V also made use of the same broadbanding concepts. About the same time, Jennings published an article about running a large number of tubes in parallel such that the output impedance was very nearly 50 ohms, the 813 design did not have that luxury...

The latest address for Wes is as follows....

Wes Schum  
6223 N McClellan Ave.  
Chicago, 60646

I have not idea how a letter would be received by him but it would not hurt to try. I was conversing with w6ajf, Frank Jones a while back and the letters stopped coming, I see he passed away a short while ago - these guys are getting real old now, so the response to an inquiry is not predictable.

Good Luck  
Larry va3lk / wa3zia

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: "Turini, Bill" <turinib@wdni.com>  
Subject: TV-10 Tube Tester  
Message-ID: <199601051833.AA05977@interlock.wdni.com>

I recently acquired a TV-10 tube tester. The manual I received with it has a change date of 23 August, 1962 on it. The tube listing inside does not match the roll in the tester. I assume that there is a later version of the manual. Does anyone have any information in regards to the latest manual date, or roll date?

Thanks

Bill Turini KA4GAV/7  
h (360) 825-1167

turinib@wdni.com  
w (260) 924-5890

S/1

S/1 Always looking for Signal/One equipment, accessories, documentation, etc.

S/1

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996

Subject: Vacuum-tube test equipment

- (1) General Radio audio oscillator 1302-A, good condition. - \$35
- (1) General Radio audio oscillator 1302-A, works but output is low, needs re-tubing. - \$20
- (1) Hickok 610A - TV/FM signal generator, classic piece of test gear for the Hickok collector. - \$45
- (1) Heath IG-82 Sine/Square generator, solid state, good condition - \$35
- (1) Hickok 752-A Tube Tester, case is worn, but works fine. - \$80  
This ia a nice tester. The old guys at the factory told me this was their best.  
I can provide photocopy of owner's manual. I don't believe they are available from Hickok anymore.

These items are for pick-up only in the Portland, OR area.

Dick Dillman  
WPE2VT N6VS ex-WA2BJK  
<ddillman@igc.apc.org>  
Collector of Heavy Metal:  
Harleys, Willys and Radios Over 100lbs.

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996

From: "Grant Youngman" <gyoungma@gtetel.com>

Subject: Variac Specs and Line Voltage

Message-ID: <9601051650.AA29906@netman>

Gang ...

I live in an area where the line voltage is pretty constant at about 125. With the usual gear on in transmit I have about a 13-15 amp draw per the the equipment specs at 115 volts.

I was contemplating acquiring a 20 amp Variac to run most of the BA

station from to handle the line voltage problem. Does anyone know if the usual specs for Variacs are for "continuous" operation or should they be derated? I'd hate to shell out the \$\$ for a large Variac only to have it burn down the house in the middle of an old buzzard transmission.

Anyone out there have a 20 amp unit you'd be interested in parting with??

Thanks .. Grant

-----  
Grant Youngman -- NQ5T

gyoungma@gtetel.com  
-----

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: bill@texan.frco.com (William Hawkins)  
Subject: Re: Variac Specs and Line Voltage  
Message-ID: <9601052007.AA04348@texan.frco.com>

If the line is pretty constant (you're not far from the power transformer (where 'far' is a coupla hundred feet)), you don't need an expensive variable transformer. Get a 12 volt 20 amp (or two 6.3 V 20 A) xfmr and use it to buck the line volts down to 125-12 = 113.

Bill Hawkins

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: doonan@cordmc.dnet.etn.com (DENNIS DOONAN X6916 (KG9DO))  
Subject: RE: variacs  
Message-ID: <9601051914.AA05676@etn.com>

Grant,

I can't find the product information right now, but we have always assumed the rating was continuous if you are near the "top of the tap" (ie, using it at high outputs).

There are two types, & usually can be wired in either way. On 120 Vac line they give 0 to 120 or 0 to 140 out. Sometimes the 120 v ones are a bit less expensive.

You can occasionally find a 3-phase version. Just wire it for a single phase. Problem is these get big.

I mostly use a 10 Amp version in the shop for all my testing. The shack voltage is reduced with a simple buck setup. A 15 to 20 amp 6 or 12 v filament xfmr is a LOT cheaper than a variac. This

is probably the best way to do it if your line voltage is constant. Box it up nice with a fuse, switch and outlet. I have one in a chassis/cover that used to house a small PA system tube type amp. From the front and sides, it looks like it belongs in the shack.

If you do find a used variac, be sure the carbon brushes are in good shape. Some times they are hard to find and EXPENSIVE. Also, check the wiring for signs of overheating or bad repairs. Many of the panel mounted ones were on unfused lines and got pretty hot when a short circuit on the load occurred.

Hope this helps. Good luck.

73 de Dennis, KG9DO doonan@cordmc.dnet.etn.com

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: KC5IJD@aol.com  
Subject: WTB: Boonton 91H  
Message-ID: <960105094803\_107229941@mail06.mail.aol.com>

Looking for a Boonton 91H RF voltmeter.

73

Joseph W Pinner  
Lafayette, LA  
KC5IJD  
EMail: kc5ijd@aol.com

From boatanchors@theporch.com Fri Jan 5 18:22:33 1996  
From: Sandy Blaize <70401.134@compuserve.com>  
Subject: WTB: Boonton 91H  
Message-ID: <960105214328\_70401.134\_IHD119-1@CompuServe.COM>

Joe Pinner's inquiry reminded me....I'm looking for a book or photocopy of a book for a

Boonton 91C RF Voltmeter. Anyone have one out there?

73,

Sandy W5TVW

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: thaake@bsm2ee1.attmail.com (thaake)  
Subject: WTB: CV-89  
Message-ID: <PMX-TERM-2.02-bsm2ee1-thaake-40>

Gang,

I am looking for a CV-89 TTY converter and manual. Drop a line to me if you have one that is available.

Thanks,

Tim  
thaake@attmail.com  
314-240-5203

From boatanchors@theporch.com Fri Jan 5 10:47:25 1996  
From: Jim\_Wilson-EJW012@email.mot.com  
Subject: WTB: Riders Radio Manuals  
Message-ID: <"Macintosh \*/PRMD=MOT/ADMD=MOT/C=US/"@MHS>

From: Wilson-EJW012 Jim on Fri, Jan 5, 1996 8:19 AM  
Subject: WTB: Riders Radio Manuals

Wanted: Riders 'Perpetual Troubleshooters Manuals' (Radio, not TV) in reasonable condition. Volumes 1-5 \*Unabridged\*, and Volumes 16 and above.

Thanks,

Jim Wilson  
3815 NW 72 Dr.  
Coral Springs, FL 33065-2244  
phone: 305-723-4532 (day); 305-341-3306 (eve)  
fax: 305-723-5064  
email: EJW012@email.mot.com